23. Timber Oatgrass Ecological Series

Table 23-1. Full and short names for the ecological types in the Timber Oatgrass Ecological Series.			
Ecological Type Code	**Name**	**Plant Association Code**	**Short Name**
GA09	Timber oatgrass/tufted hairgrass–Shallow Cryumbrepts and Cryoborolls–Windward, somewhat protected footslopes and toeslopes, > 10,500 ft	DAIN/DECE	Timber oatgrass–Shallow soils–Exposed high ridges

This is the *Danthonia intermedia* series of Hess and Wasser (1982) and Komárková (1986). The series encompasses dry, windswept grassland with shallow soils at high elevations in the upper subalpine and lower alpine (Hess and Wasser 1982, Komárková 1986). Stands occupy small sites that are usually isodiametric in shape and are easy to distinguish on aerial photos. Revegetation is difficult in these cold, windswept sites.

Table 23-2. Climate and Soils		
Characteristic	Value	**Reference**
Precipitation zone	560 to 730 mm/yr 22-29 in/yr	Ostler and others 1981-1982

These sites are not often grazed by livestock because they are so exposed. Elk, and less often deer, sometimes use them for standing, as they often have spectacular views.

Table 23-3. Snow release zones in timber oatgrass sites (Ostler and others 1981-1982)			
	Snow Release Zone		
Snow-free **Date**	Early **6/5-6/11**	Middle **6/8-6/14**	Late **6/13-6/24**
Total Live Cover, %	73.2	79.4	67.2
Production, kg/ha/yr	965	1,073	917
Apr. 1 water in snow, mm	428	570	802
Soil organic matter, %	19.7	16.3	15.1
Soil pH	5.2	5.2	5.3
Water stress, ANPA4[1], bars	11.4	6.2	4.9

[1] *Antennaria parvifolia*

Sites are not suitable for roads and trails, but it is usually easy to locate them in other, less exposed sites. Though this series is rated as very resistant to trampling damage by humans (Cole 1985), sites are probably not suitable for developed recreation because they are very windy, but they make good, stable viewpoints for dispersed recreation.

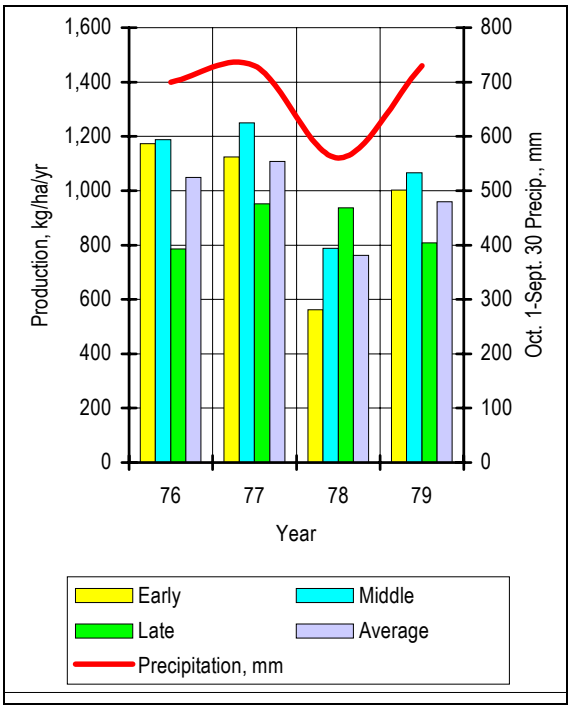

Figure 23-1. Production of snow release zones in timber oatgrass sites (Ostler and others 1981-1982).

Table 23-4. Characteristics of Ecological Types within Ecological Series 23 in the Upper Gunnison Basin. Numbers are shown in form *Average (Minimum-Maximum)*								
Code Short Name	**No. samples**	**Elevation, ft**	**Avg. Aspect, °M (r) Slope, %**	**Soil Coarse, %**	**Depth, cm Mollic, cm**	**Surface: Coarse, % Bare, %**	**Cover, %: Trees Shrubs Graminoids Forbs**	**Total Live Cover, % No. Species TLC/NS, %**
GA09 Timber oatgrass–Shallow soils–Exposed high ridges	4	11,108 (10,580-11,960)	297 (0.79) 4 (2-7)	*	20 0	2 (2-3) 13 (5-30)	0 (0-0) 2 (0-4) 72 (51-95) 37 (20-65)	111.0 (93.0-125.6) 29 (22-38) 4.1 (2.4-5.7)

A timber oatgrass stand just at timberline. Timber oatgrass dominant.
Stewart Peak Quadrangle, elevation 11,960 ft, 3.5% NW-facing slope. August 26, 1982.

GA09 **TIMBER OATGRASS–SHALLOW SOILS–EXPOSED HIGH RIDGES** DAIN/DECE

Timber oatgrass/tufted hairgrass–Shallow Cryumbrepts and Cryoborolls–
Windward, somewhat protected footslopes and toeslopes, > 10,500 ft

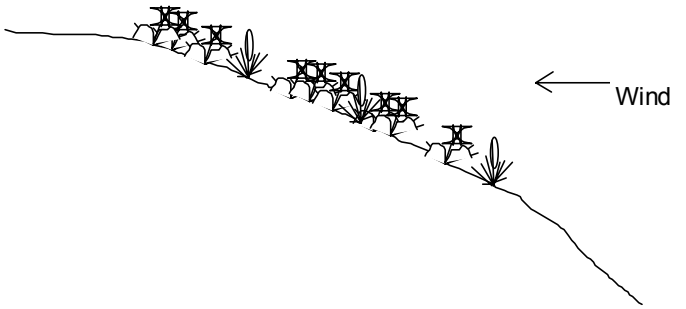

Figure 23-2. Cross-section of vegetation structure of *Timber oatgrass–Shallow soils–Exposed high ridges*. Aspects are windward (westerly), and slope angles average 4%.

Timber oatgrass–Shallow soils–Exposed high ridges is an unusual type in the UGB. It occurs on windward footslopes and toeslopes, on shallow soils inside or outside the deep rainshadows. In the Gunnison Basin, it occupies windy ridgetops and ridge shoulders. This type has also been described from high Subalpine and lower Alpine areas in northern and central Colorado and northeastern Utah. *Timber oatgrass–Shallow soils–Exposed high ridges* is characterized by timber oatgrass (DAIN) and tufted hairgrass (DECE), and by very shallow soils and location on cold windswept ridgetops and shoulders. See Table 23-7 for common species names and codes.

Timber oatgrass–Shallow soils–Exposed high ridges is related to *Purple pinegrass–Shallow rocky soils–Exposed high ridges*, which occurs at higher elevations and on even more exposed ridge shoulders with coarser soils, and supports conspicuous purple pinegrass (CAPU).

Timber oatgrass–Shallow soils–Exposed high ridges occurs mostly below Alpine timberline, but some sites are above timberline, so it is considered both an Alpine and a Subalpine type. Cold spruce-fir forests adjoin this type on steeper, more protected slopes. Thurber fescue grasslands border this type on deeper soils and more protected sites.

The plant association *Danthonia intermedia/Deschampsia cespitosa* (Johnston 1987) is based on *Danthonia intermedia/Potentilla diversifolia* (Hess 1982) and on *Danthonia intermedia/Erigeron simplex* (Komárková 1986).

Very little is known about succession in this unusual type. Presumably, moderately-heavy to heavy grazing by cattle, sheep, deer, or elk decreases graminoid cover and increase bare soil. Horizontal obstruction is probably very low to low. Elk may use these sites as lookouts, but deer rarely use them.

Community Type

A *Timber oatgrass-tufted hairgrass-sparse* is usually dominated by timber oatgrass. 6-95% cover, often >10%. All plots have tufted hairgrass in small quantities 1-10% cover. One plot (the one with oatgrass 6%) is dominated by Baker's lupine (LUBAA), an upper-Subalpine short forb.

Table 23-5. Community types within *Timber oatgrass–Shallow soils–Exposed high ridges*.

Community Type	No. samples	Elevation, ft Slope, %	Coarseness, % Depth, cm Mollic Depth, cm	Surface Coarse, % Bare, % Seral Stage	Layer Height, m Lr Avg Layr Cvr %	Cover, %: Trees Shrubs Gramin. Forbs	No. Species Total Live Cover, % TLC/NS, %	Prod.[1], lb/ac/yr Shrubs Gramin. Forbs	Obstruct'n %: 1.5-2.0 m 1.0-1.5 m 0.5-1.0 m 0.0-0.5 m Total<2m
A. Timber oatgrass-tufted hairgrass-sparse	4	11,108 (10,580-11,960) 3.9 (2-7)	* 20 0	2 (2-3) 13 (5-30)	*	0 (0-0) 2 (0-4) 72 (51-95) 37 (20-65)	29 (22-38) 111 (93-126) 4.1 (2.4-5.7)	0-92 1074-2583 46-735	*

*. Unknown: measurements were not taken in this CT.

Summary of Ecological Type Characteristics

1. Explanation of symbols in Appendix A. Percentages in [brackets] indicate the percentage of plots sampled that have that characteristic.

NUMBER OF SAMPLES	4, soil descriptions from none of these
ELEVATION	11,108 ft (10,580-11,960 ft); 3,385 m (3,225-3,645 m)
AVERAGE ASPECT	297°M (r = 0.79)
LITHOLOGY	Granite [50%], limestone, and rhyolite
FORMATIONS[1]	A wide variety
LANDFORMS	Soil creep slopes [67%] or moraines [33%]
SLOPE POSITIONS	Footslopes and toeslopes [80%]
SLOPE SHAPES	Linear horizontally, Concave vertically
SLOPE ANGLE	3.9% (2-7%)
SOIL PARENT MATERIAL	Colluvial [67%] or glacial [33%]
COARSE FRAGMENTS	2.3% (2-3%) cover on surface, Soil Classification. The sites as mapped were Cryumbrepts [67%] and Cryoborolls [33%]
TOTAL LIVE COVER	111.0% (93.0-125.6%)
NUMBER OF SPECIES	28.8 (22-38)
TOTAL LIVE COVER/NO. SPECIES	4.1% (2.4-5.7%)
CLIMATE	Cold to very cold, wind-exposed, upper Subalpine to lower Alpine.
WATER	Snow is moderately deep in winter, but blows off these sites early. The ground cover retains some little moisture through the growing season.

Table 23-6. Resource Values for *Timber oatgrass–Shallow soils–Exposed high ridges*. Resource values were calculated from the numbers in Table 23-5, relative to the whole UGB.

The numbers in this table can be translated: 0 = Very Low, 1 = Low, 2 = Moderately Low, 3 = Moderate, 4 = Moderately High, 5 = High, and 6 = Very High.

	Community Type
Resource Value	**A**
Potential Cattle Forage Production	3-4
Grazing Suitability	2[1]
Wetland	No
Riparian Area	No
Developed Recreation	ns[1]
Dispersed Recreation	2-3
Scenic	5-6
Road & Trail Stability	5
Construction Suitability	2[1]
Deer & Elk Hiding Cover	0-1
Deer & Elk Forage & Browse	0-1
Need for Watershed Protection	1
Soil Stability	4-5
Risk of Soil Loss-Natural	0-1
Risk of Soil Loss-Management	3-4
Risk of Permanent Depletion-Range	0-1
Risk of Permanent Depletion-Wildlife	3-4
Resource Cost of Management	3-4
Cost of Rehabilitation	4-5

1. Generally poorly suitable because sites are windy and exposed.

Table 23-7. Common Species in *Timber oatgrass–Shallow soils–Exposed high ridges*, where Characteristic cover > 10% or Constancy > 20%. "–" means that the species is not found. Dead cover is not listed. Ccv = Characteristic Cover, Con = Constancy. If Avc = Average Cover, then these are related using the formula Avc = Ccv•100%/Con.

Code	Species	Ccv (Con) N = 4	Common Name
	SHRUBS		
RIMO2	Ribes montigenum	1 (25)	mountain gooseberry
VACE	Vaccinium cespitosum	2 (75)	dwarf bilberry
	GRAMINOIDS		
ACLE9	Achnatherum lettermanii	30 (25)	Letterman needlegrass
AGSC5	Agrostis scabra	2 (75)	rough bentgrass
CAPU	Calamagrostis purpurascens	T (25)	purple pinegrass
CAEB	Carex ebenea	12 (25)	ebony sedge
CAEL3	Carex elynoides	T (25)	Kobresia-like sedge
CAGE2	Carex geyeri	3 (25)	elk sedge
CAMI7	Carex microptera	2 (25)	smallwing sedge
DAIN	Danthonia intermedia	42 (100)	timber oatgrass
DECE	Deschampsia cespitosa	4 (100)	tufted hairgrass
ELTR7	Elymus trachycaulus	6 (50)	slender wheatgrass
FEID	Festuca idahoensis	3 (50)	Idaho fescue
KOMA	Koeleria macrantha	1 (25)	prairie junegrass
PHPR3	Phleum pratense	3 (25)	common timothy
POARG	Poa arctica ssp. grayana	T (25)	arctic bluegrass
POFE	Poa fendleriana	15 (25)	muttongrass
PONEI2	Poa nemoralis ssp. interior	3 (25)	interior bluegrass
TRSP2	Trisetum spicatum	6 (50)	spike trisetum
	FORBS		
ACLA5	Achillea lanulosa	3 (100)	western yarrow
AGGL	Agoseris glauca	T (75)	false-dandelion
ANSE4	Androsace septentrionalis	T (25)	northern rock-jasmine
ANPA	Anemone parviflora	2 (25)	arctic anemone
ANCO	Antennaria corymbosa	2 (25)	plains pussytoes
ANRO2	Antennaria rosea	T (25)	rose pussytoes
ARSC	Artemisia scopulorum	3 (25)	alpine sagebrush
BIBI5	Bistorta bistortoides	1 (75)	American bistort
BODR	Boechera drummondii	1 (25)	false-arabis
BOSE3	Boechera selbyi	T (25)	false-arabis
CARH4	Castilleja rhexifolia	T (25)	splitleaf paintbrush
CLRH2	Clementsia rhodantha	T (25)	rose crown
DRRE	Draba rectifructa	1 (25)	whitlow-wort
ERIGE2	Erigeron	T (25)	fleabane
ERSI3	Erigeron simplex	2 (25)	one-stemmed fleabane
ERSU2	Erigeron subtrinervis	2 (25)	threenerve fleabane
FRVI	Fragaria virginiana	1 (50)	Virginia strawberry
GEAC2	Gentianella acuta	T (25)	little gentian
GEAL6	Gentianodes algida	T (25)	alpine gentian
LIOB4	Lidia obtusiloba	T (25)	alpine sandwort
LIBIH	Ligularia bigelovii var. hallii	T (25)	Bigelow groundsel
LUBAA	Lupinus bakeri ssp. amplus	40 (25)	Baker's lupine
MIRH	Micranthes rhomboidea	T (25)	diamond-leaf saxifrage
ORAL	Oreoxis alpina	18 (25)	alpine-parsley
PANE7	Packera neomexicana	1 (25)	New Mexico groundsel
PEGR2	Pedicularis groenlandica	T (25)	elephantella
PNAF	Pneumonanthe affinis	1 (50)	bottle gentian
PODI2	Potentilla diversifolia	1 (75)	varileaf cinquefoil
POPU9	Potentilla pulcherrima	3 (75)	beauty cinquefoil
PORU3	Potentilla rubricaulis	1 (25)	snow cinquefoil
PSMO	Pseudocymopterus montanus	T (50)	mountain parsely
RUTR3	Rumex triangulivalvis	T (25)	Mexican dock
SASA	Sagina saginoides	T (25)	arctic pearlwort
SEDE2	Selaginella densa	1 (25)	little club-moss
SEIN2	Senecio integerrimus	4 (50)	lambs-tongue groundsel
SIPR	Sibbaldia procumbens	1 (50)	creeping sibbaldia
SOMU	Solidago multiradiata	4 (100)	mountain goldenrod
STLO2	Stellaria longipes	T (75)	long-stalked stitchwort
TAOF	Taraxacum officinale	2 (25)	common dandelion
TAOV	Taraxacum ovinum	2 (50)	rough dandelion
VENU2	Veronica nutans	T (25)	American alpine speedwell
VIAD	Viola adunca	2 (75)	hook violet
	FERNS & FERN-ALLIES		
BOLU	Botrychium lunaria	T (25)	common moonwort
	GROUND COVER		
.BARESO	bare soil	13 (100)	
.LITTER	litter and duff	85 (100)	
.MOSSON	moss on soil	– –	
LICHENS	lichens on soil	7	